

## Technical Training Competency 1.12

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**Competency 1.12** Technical training personnel shall demonstrate a working level knowledge of oral, written, and performance evaluation techniques and methodologies.

### 1. Supporting Knowledge and Skills

- a. Explain the purpose of testing and why tests should be based upon learning objectives.
- b. List and describe the different types of written test items formats that may be utilized, and discuss the advantages and disadvantages of each.
- c. Describe the key elements of an adequate oral evaluation process, and discuss the advantages and disadvantages of this method of evaluation.
- d. Describe the key elements of an adequate performance evaluation process or operational evaluation process, and discuss the advantages and disadvantages of this method of evaluation.
- e. Explain how test item statistics are utilized to evaluate the quality (validity and reliability) of test items and the learning objectives or training on which they are based.
- f. Describe the purpose and use of examination banks.

### 2. Self-Study Activities (corresponding to the intent of the above competency)

Below are two web sites containing many of the references you may need.

Web Sites		
Organization	Site Location	Notes
Department of Energy	<a href="http://wastenot.inel.gov/cted/stdguido.html">http://wastenot.inel.gov/cted/stdguido.html</a>	DOE Standards, Guides, and Orders
U.S. House of Representatives	<a href="http://law.house.gov/cfr.htm">http://law.house.gov/cfr.htm</a>	Searchable Code of Federal Regulations

## Technical Training Competency 1.12

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**Read** Sections 2 and 3, pages 3 through 10, of DOE-STD-1011-92, U.S. Department of Energy Guideline, *Guide to Good Practices for the Design, Development, and Implementation of Examinations*; Sections 5.1.4 and 5.2, pages 47 through 49, of DOE-HDBK-1078-94, U.S. Department of Energy Handbook, *Training Program Handbook: A Systematic Approach to Training*; and pages 5-15 through 5-26 of *The Occasional Trainer's Handbook*.

EXERCISE 1.12-A What is the purpose of testing trainees?

EXERCISE 1.12-B What are tests based upon, and why?

EXERCISE 1.12-C What is the most common type of test used in the performance-based training programs?

EXERCISE 1.12-D What are the common types of written tests (for example, multiple-choice)?

**Read** Section 4.6, pages 17 through 18, of DOE-STD-1011-92, U.S. Department of Energy Guideline, *Guide to Good Practices for the Design, Development, and Implementation of Examinations*.

EXERCISE 1.12-E What are the reasons an oral examination would be administered?

**Read** Section 5, pages 21 through 30, of DOE-STD-1011-92, U.S. Department of Energy Guideline, *Guide to Good Practices for the Design, Development, and Implementation of Examinations*; Section 4.5, pages 14 through 16 of DOE-STD-1080-95, U.S. Department of Energy Guideline, *Guide to Good Practices for Oral Examinations*, and **scan** Section 5, pages 31 through 36 of DOE-STD-1012-92, U.S. Department of Energy Guideline, *Guide to Good Practices for On-the-Job Training*.

EXERCISE 1.12-F List the major steps in conducting a walk-through type of performance evaluation.

EXERCISE 1.12-G Review the example performance test and job performance measure in Appendices E and F of DOE-STD-1011-92.

**Read** Section 6, pages 31 through 33, of DOE-STD-1011-92, U.S. Department of Energy Guideline, *Guide to Good Practices for the Design, Development, and Implementation of Examinations*.

EXERCISE 1.12-H Why are validity and reliability important factors to consider when administering examinations?

## Technical Training Competency 1.12

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### 3. Summary

The evaluation of learning entails the use of oral examinations, performance tests, written tests, and observation. Oral questions are used to check the participants' understanding of the information as it is taught. Performance tests are used to measure skills and the ability to apply knowledge to job-related tasks. Written tests measure knowledge--that is, the understanding of principles, procedures, and facts. Observation, as an evaluation method, can be used to assess the application of the trainee's or training graduate's knowledge and skills.

### 4. Exercise Solutions

EXERCISE 1.12-A What is the purpose of testing trainees?

- ANSWER 1.12-A
- Trainee assessment
    - Trainee selection and placement
    - Trainee motivation
    - Instructional improvement
    - Program evaluation
    - Testing as a teaching methodology

EXERCISE 1.12-B What are tests based upon, and why?

- ANSWER 1.12-B Learning objectives that were derived from the job tasks.
- To ensure that the test is job-related

EXERCISE 1.12-C What is the most common type of test used in the performance-based training programs?

ANSWER 1.12-C Performance tests.

EXERCISE 1.12-D What are the common types of written tests (for example, multiple-choice)?

- ANSWER 1.12-D
- Matching
  - Short-answer
  - Essay
  - Multiple-choice

## Technical Training Competency 1.12

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EXERCISE 1.12-E What are the reasons an oral examination would be administered?

- ANSWER 1.12-E
- To test higher levels of learning, such as application, reasoning, and judgment
  - To test trainees who have language disorders or deficiencies

EXERCISE 1.12-F List the major steps in conducting a walk-through type of performance evaluation.

- ANSWER 1.12-F
1. The evaluator prepares--acknowledging or establishing the testing environment, conditions, etc.
  2. The evaluator provides adequate directions to the candidate trainee.
  3. The evaluator closely observes the candidate (to ensure proper performance and conformance with all safety rules).
  4. The evaluator queries the candidate with related oral questions.
  5. The evaluator keeps good notes during the session in order to properly assess the candidate's specific and overall performance.

EXERCISE 1.12-G Review the example performance test and job performance measure in Appendices E and F of DOE-STD-1011-92.

ANSWER 1.12-G None required.

EXERCISE 1.12-H Why are validity and reliability important factors to consider when administering examinations?

- ANSWER 1.12-H
- The test must be accurate and measure exactly what it was intended to measure (validity).
  - The test must consistently measure over time and over all candidates what it was intended to measure (reliability).